Annual Report

of the

SASKATCHEWAN

CANCER

FOUNDATION

April 1, 1982 to March 31, 1983

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SASKATCHEWAN CANCER FOUNDATION

Members

Mr. E. I. Schwartz
Chairman

Dr. R. B. Baltzan

Dr. J. L. Blackburn

Mr. J. Craig

Dr. I. E. Daunt

Dr. P. A. Glynn

Mrs. E. Green

Mr. G. F. McCallum

Dr. R. G. Murray

Ms. L. Perrin

Missing — Mrs. A. Duncan

Honourable Graham Taylor
Minister of Health
Province of Saskatchewan
Legislative Building
REGINA, Saskatchewan
S4S 0B3

December 1, 1983

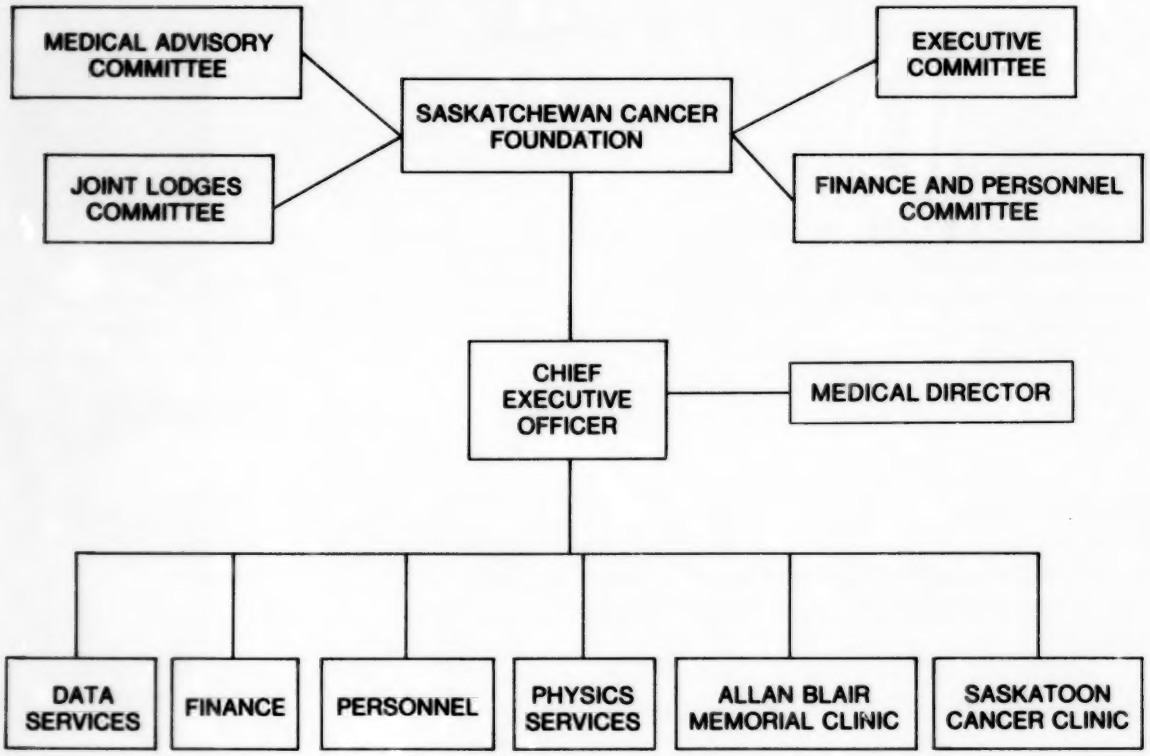
Dear Mr. Taylor:

As Chairman of the Saskatchewan Cancer Foundation, I have the honour to submit herewith the report on the activities of the Foundation for the fiscal year ending March 31, 1983.

Respectfully submitted,

E. I. Schwartz
Chairman

ORGANIZATION CHART



MEDICAL ADVISORY COMMITTEE
Dr. D. J. Klaassen — Chairman
Dr. G. R. Armitage
Dr. W. D. MacRae
Dr. J. B. McSheffrey
Dr. L. K. Moore
Dr. M. A. Poon
Dr. C. H. Rusnak
Dr. G. R. Spooner
Dr. R. W. Twanow
Dr. H. G. Whiston

JOINT LODGES COMMITTEE
Mr. G. F. McCallum
Ms. L. Perrin

EXECUTIVE COMMITTEE
Mr. E. I. Schwartz — Chairman
Dr. J. L. Blackburn — Vice-Chairman
Dr. R. B. Baltzan
Mr. G. F. McCallum
Dr. R. G. Murray

FINANCE AND PERSONNEL COMMITTEE
Dr. J. L. Blackburn — Chairman
Mr. J. Craig
Mrs. E. Green
Mr. E. I. Schwartz

BOARD MEMBERS
(Term Completed — Nov. 1982)

Mrs. F. Clark
Mrs. K. Coates
Ms. S. Fowler
Ms. D. Iverson

ORGANIZATION

ADMINISTRATION

P. H. Peters
— *Executive Director*
R. J. Meldrum
— *Director of Finance*
O. H. Pratt
— *Director of Personnel*
D. L. Robson
— *Director of Data Services*
S. O. Fedoruk
— *Director of Physics Services*
J. M. Gebert
— *Administrative Assistant*
D. A. Lauridsen
— *Payroll Clerk*
M. J. Wenman
— *Accounting Clerk*
S. H. Tompkins
— *Personnel Clerk*

ALLAN BLAIR MEMORIAL CLINIC

Dr. H. G. Whiston
— *Director*
B. I. Karchewski
— *Secretary*
J. A. Grill
— *Business Manager*
A. M. Sweet
— *Assistant to Business Manager*
M. Foster
— *Secretary*

SASKATOON CANCER CLINIC

Dr. D. J. Klaassen
— *Director*
A. D. Oatway
— *Secretary*
O. Belovanoff
— *Business Manager*
M. M. Wood
— *Assistant to Business Manager*

The Saskatchewan Cancer Foundation has established several sub-committees to facilitate the carrying out of its mandate. The Executive Committee of the Foundation is composed of the Chairman, Vice-Chairman and three other members. It considers any urgent business of the Foundation that may arise between regular meetings of the Foundation. The Medical Advisory Committee advises the Foundation on the provision of medical services and other related matters. Its membership includes the Medical Directors of the cancer clinics, two full-time physicians on the clinic staff, three specialists in private practice and two general practitioners as determined by agreement with the College of Physicians and Surgeons of Saskatchewan and one representative from the College of Medicine. At least ten and not more than seventeen members may be appointed to the committee. The Finance and Personnel Committee consists of the Chairman — ex officio, and three other members of the Foundation. It makes recommendations regarding the financial operation of the program, as well as personnel matters including salary and fringe benefits of staff. The Joint Lodges Committee is a joint committee of the Saskatchewan Cancer Foundation and the Canadian Cancer Society, Saskatchewan Division. Its role is to evolve proposals for patient lodges in Regina and Saskatoon. Two members representing the Saskatchewan Cancer Foundation are members of the committee.

The development and operation of the Saskatchewan Cancer Program is the responsibility of the Saskatchewan Cancer Foundation. It employs a chief executive officer who is responsible for implementing the policies of the Foundation and for the ongoing operation of the program.

The Foundation maintains two service outlets — the Allan Blair Memorial Clinic in Regina and the Saskatoon Cancer Clinic. The clinics provide full diagnostic services, treatment services in radiotherapy and chemotherapy, and follow-up services. The clinics also serve as the centre for co-ordination of a comprehensive and multi-disciplinary approach for all aspects of care and treatment for the cancer patients.

The staff works closely with the patient's family physician, consulting physician and surgeon and other persons not directly employed by the Foundation to ensure the provision of high quality treatment and follow-up care.

Objectives

The objectives of the Saskatchewan Cancer Foundation are:

- the operation of cancer clinics for the examination, diagnosis and treatment of cancer patients
- the education of the public in the importance of the early diagnosis, prevention and treatment of cancer
- the training of technical personnel to assist in the examination, diagnosis, treatment and study of cancer and the provision of facilities for undergraduate and post-graduate study relating to cancer
- the conduct of and participation in research projects in connection with the diagnosis, prevention and treatment of cancer
- the establishment, maintenance and operation of hostels in connection with the clinics for the use of cancer patients

Eligibility and Benefits

To be eligible for benefits under the Cancer Control Program, a patient must be a resident of the province for three months and must be formally admitted to the program by his/her doctor. For landed immigrants and some special residents returning to Canada, this period is reduced to one day. Details on policies governing admission to the program, and payment of services, are included on Page 35.

There is no charge to eligible patients for diagnostic and treatment services received at the cancer clinics. In addition, the Foundation pays for authorized medical and surgical services provided by physicians in private practice, in-hospital drugs, and certain out-patient drugs used in the active treatment of cancer.

Eligible patients who elect to receive their cancer services outside the province are reimbursed at the same rates as if the service was provided in Saskatchewan. If a patient is referred out of the province by the Foundation for treatment not available in Saskatchewan, payment will be made for the medical and hospital expenses incurred. Non-residents who receive cancer services in Saskatchewan are charged at Saskatchewan rates for services rendered.

Nature and Scope of Services

The program offered by the Saskatchewan Cancer Foundation incorporates prevention, detection, diagnosis, treatment and follow-up of patients with malignant or premalignant disease. As a part of this comprehensive program, the Foundation is involved in teaching and research which is complementary to the service activities.

Since only patients referred by doctors are admitted to the Cancer Control Program, the responsibility for suspecting cancer and facilitating its detection at the earliest possible time rests with the family doctor. When the family physician suspects the presence of cancer, and has completed his investigations, a diagnosis should be arrived at and an evaluation made as to the extent of the disease and the treatment required as soon as possible. To facilitate this process, the patient should be referred to the cancer clinic or appropriate specialists, whichever is most suitable. In all cases, the patient must be registered with the program within 14 days of making the diagnosis of cancer.

When a malignant condition is discovered, the clinic medical staff, the patient's physician, and consultant specialists plan and carry out a treatment program. If surgery forms part of the treatment, the patient and his physician may choose an appropriate qualified surgeon from a surgical roster maintained by the Foundation. If radiotherapy forms part of the treatment plan, it is administered by therapeutic radiologists on the staff of the clinics. Chemotherapy, the treatment of cancer through the administration of chemical agents, is carried out by clinic medical staff and by other physicians in consultation with clinic staff.

Regular follow-up examination of patients treated for cancer is a vital procedure in detecting recurrent disease and for assessing the effectiveness of treatments. The Saskatchewan Cancer Foundation maintains a comprehensive follow-up activity with all patients receiving regularly scheduled examinations after treatment by either personnel of the clinics or their family physician.

The staff of each clinic, in co-operation with the patient's family physician and consultant specialists, attempt during treatment and follow-up to prepare the patient both physically and psychologically for the future. Those who must be fitted with prosthetics are given instructions on how to adapt to them, while patients with certain disabilities are cared for at the Wascana Hospital in Regina or the rehabilitation unit of the University Hospital in Saskatoon. Patients and their families often go through successive periods of stress and readjustment when faced with problems created by a diagnosis of cancer. Medical Social Workers at each clinic are available to meet the social and emotional needs of the cancer patients and their families.

REPORT OF THE EXECUTIVE DIRECTOR

I am pleased to submit this report highlighting the activities of the Saskatchewan Cancer Foundation for the year 1982-83. This was the third full year of the Foundation's existence and it provided a broad spectrum of experiences. Details of program activities over the past year are contained in the individual reports.

A difficult period during the year was an eight day strike by the unionized employees in August. The strike was ended by an act of the Legislature and provided for binding arbitration. Since that time, I am pleased to note that labour/managment relations have returned to normal.

Radiotherapy Technologist staffing shortages during the year were relieved by active overseas recruitment together with the employment of three students graduating from our training program. Radiation Oncologists were also recruited from Great Britain to overcome a critical shortage at the Saskatoon Clinic.

The official opening of the newly renovated Allan Blair Memorial Clinic in Regina took place on June 22nd. The renovations provided for a more functional and aesthetically pleasing environment in which to treat patients. This was followed by the appointment of Dr. H. G. Whiston as Director of the Allan Blair Memorial Clinic in September. Dr. Whiston was previously Director of Radiation Oncology for the Foundation and Head of the Department of Radiation Oncology at the Allan Blair Memorial Clinic.

Construction of the Canadian Cancer Society Patient Lodge in Saskatoon was completed in March of 1983 and it is expected to open in April. This joint project has seen the Society provide a beautiful facility which will be turned over to the Foundation to operate. The lodge will accommodate out-of-town cancer patients who are receiving treatment at the Saskatoon Cancer Clinic. We are thankful to the Society for their hard work in providing this lodge and look forward to a similar unit in Regina.

Competition is increasing within the Foundation for research funds made available from the government. The availability of these funds plays a vital role in the recruitment and retention of professional staff. The need to develop research space in both clinics is a high priority and will hopefully be realized in the near future.

Over the past ten years the cancer program has, of necessity, developed and embarked upon a variety of computer system applications. Each system filled a predetermined need; however, these systems were specific in nature and independent of other systems. Therefore, the need for an integrated approach to computer system development has resulted in the commissioning of an independent study of our requirements. We expect the consultants report in July, 1983.

We are grateful to the Honourable Graham Taylor, Minister of Health, and his officials for the time spent with the Board reviewing the cancer program needs. The commitment by the provincial government for funding over the next five years for the purchase of major equipment, expansion of existing programs and a new cancer clinic facility in Saskatoon will assist the Foundation in keeping pace with the expanding technologies of cancer care. We are excited about the challenge and opportunities this funding will allow.

I would like to express my thanks to each one in the program for their contributions over the past year. Without their continuing support and dedication, the successes of the past year would not have been possible.

On behalf of the entire staff, I would like to thank the Chairman and the Board for their assistance and encouragement. I believe the Saskatchewan Cancer Foundation is on the threshold of exciting developments and I am enthusiastic about its future.

P. H. Peters

REPORT OF THE MEDICAL DIRECTOR

1982 was a time of change and rebuilding in the Saskatchewan program. The ground work has now been laid for the future.

Dr. H. G. Whiston took over the directorship of the Allan Blair Memorial Clinic during this year and continues as Radiation Oncology Director for the provincial program. Dr. C. H. Crosby retired as Medical Director of the Regina Clinic and continues to work part-time in addition to acting as Surgical Co-ordinator of the provincial program. I would like to take this opportunity to recognize and thank him for his many contributions. During the year, Dr. M. A. Poon was appointed as Medical Oncology Co-ordinator and Dr. J. B. McSheffrey was appointed Pediatric Co-ordinator for the program.

An important event occurring this year was that the Saskatchewan Cancer Program was accepted for membership in the North Central Cancer Treatment Group. The details concerning this involvement are included in the section under Research.

The Annual Cancer Symposium was successfully held in Regina in the fall, on the topic of Gastrointestinal Cancer, in co-operation with the Regina Gastroenterology Group. The Annual Professional Retreat for the physicians and physicists was also held in Regina in the late fall.

The Saskatchewan Cancer Foundation continues to be involved in the College of Medicine through the Division of Oncology. This close working relationship has proven to be most beneficial for all concerned. The Medical Director was appointed as Cancer Co-ordinator for the College of Medicine, a position funded by the National Cancer Institute of Canada, for a three-year period.

Dr. D. J. Klaassen

REPORT OF THE RADIATION ONCOLOGY CO-ORDINATOR

The year 1982 was a difficult one in the program of Radiation Oncology due to staff shortages in both clinics. An acute shortage of Radiation Oncologists in Saskatoon towards the end of 1982 was improved by the arrival in January, 1983 of Dr. M. F. Mohamed and Dr. C. T. Ago. In the Allan Blair Memorial Clinic, a shortage of Radiation Technologists was lessened by hiring technologists on a temporary basis from Britain.

The Provincial Radiation Technologist Training Program is functioning well. Three students graduated during the year. Two entered their second year of training and one first year student is studying at the Princess Margaret. Negotiations were held with the Province of Manitoba to send our students to the Red River College, but these were unsuccessful. We will continue to use facilities at the Princess Margaret in Toronto for the didactic teaching, doing our own clinical and planning teaching at the clinics prior to examinations. Negotiations are underway to once again establish the didactic portion in Saskatchewan, possibly at the Kelsey Institute in Saskatoon.

In 1983 we expect to see marked improvement in Radiation Oncology by further increasing our radiation oncologist and technologist staffing. Additionally, a substantial increase in our equipment budget will allow us to continue to improve patient care.

Dr. H. G. Whiston

REPORT OF THE PEDIATRIC CO-ORDINATOR

With relatively small numbers of patients with large potentially curable problems in many cases, co-operation between the two clinics is essential in Pediatric Oncology. We have agreed to work toward common protocols in the Allan Blair Memorial Clinic and the Saskatoon Cancer Clinic. With more help in Pediatric Oncology available in the near future, we hope to improve services to children with cancer.

Dr. J. B. McSheffrey

REPORT OF THE SURGICAL CO-ORDINATOR

Over the past year, the Surgical Co-ordinator has been involved in several activities including acting as a consultant in Surgical Oncology to referring physicians and surgeons and participating in educational meetings and conferences. The following activities were organized to stimulate on-going cancer education: The Annual Cancer Symposium, A Day in Gastroenterology, a Breast Cancer Symposium — Multimodal Management of Breast Cancer, lectures on The Role of Surgery in the Management of Cancer Patients and Advances in Oncology.

Dr. C. H. Crosby

REPORT OF THE DIRECTOR OF PHYSICS SERVICES

Physics Services supports radiation oncology in both clinics through the continued maintenance of all aspects of radiation dosimetry; collaboration in treatment planning and in verification of the accurate execution of the plans; responsibility for all physical aspects of radiation protection; design and maintenance of radiation oncology equipment; and advice on the choice of new radiation oncology equipment and on the physical aspects of the design of buildings.

Physics Services has continued to develop and enhance existing computer software for the Departments of Radiation Oncology. Three major programs have been added to the existing systems. These provide treatment planning support for linac photons, for brachytherapy dosimetry for seed implants using either I-125, Ir-192, or Au-198, and for intracavitary treatments. Treatment planning programs are developed for both clinics using the PDP 11/60 computer located at the Allan Blair Memorial Clinic.

Physics Services continues full maintenance support for major radiation oncology treatment equipment. Current radiation oncology treatment equipment in the Allan Blair Memorial Clinic consists of a dual purpose x-ray unit, a Picker C9 Cobalt unit, a Siemens Linear Accelerator, and a Siemens Simulator. The Saskatoon Cancer Clinic houses two x-ray units (280 kVp and 120 kVp), a Siemens 42 MeV Betatron, an AECL Cobalt unit, and an AECL Simulator.

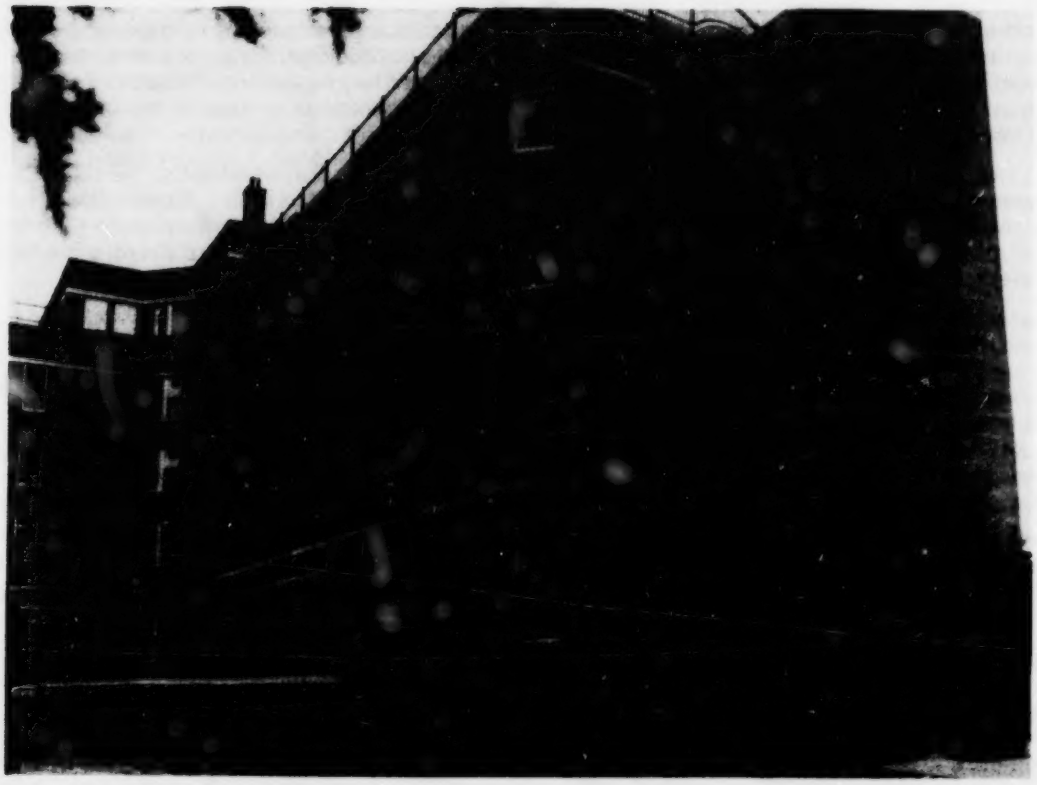
Physicists in both clinics are extensively involved with the Departments of Nuclear Medicine of the Pasqua, Plains, and University Hospitals. Emission computed tomography software was developed and optimized for use with the Pasqua Hospital's Gamma-11 computer system. In addition, Physics Services in Regina has designed and built a dynamic phantom to simulate the action of the left ventricle of the heart. It will be used to correlate radionuclide determinations of ventricular ejection fractions by computer algorithms with values measured directly from the phantom. The selection of new gamma cameras and the upgrading of existing cameras in both Regina and Saskatoon were done in consultation with Physics Services.

Physics Services has been increasingly active in the areas of research and development. In Regina, work is nearing completion on the development of a micro-processor based, numerically controlled milling machine for compensator production. A major development has been the design and production of a single board micro-computer for use in the department. In Saskatoon, developmental work is continuing on new techniques to measure patient contours using both a sonics and an optical approach.

The physicists also contribute to a number of committees concerned with radiation, including the Atomic Energy Control Board of Canada, Radiation Safety Committees of the University and Pasqua Hospitals, and the Radiation Health and Safety Committee of Saskatchewan.

S. O. Fedoruk

ALLAN BLAIR MEMORIAL CLINIC



REPORT OF THE ALLAN BLAIR MEMORIAL CLINIC

The past year was busy and saw many changes for the Allan Blair Memorial Clinic.

Renovations to the clinic were completed culminating a two-year rebuilding program. The official opening took place on June 22, 1982.

Dr. H. G. Whiston, previously Head of Radiation Oncology, was appointed Director of the clinic effective September 1, 1982. He succeeds Dr. C. H. Crosby who retired having served as Medical Director since August 1, 1978. Dr. Crosby continues to work on a part-time basis as Co-ordinator of Surgical Oncology. Dr. S. K. Liem was appointed Head of Radiation Oncology and Dr. M. A. Poon, Head of Medical Oncology. The clinic was successful in the recruitment of a Pediatric Oncologist with the appointment of Dr. T. S. Goh who will commence her duties July 1, 1983.

The annual Cancer Symposium called "A Day in Gastroenterology" was held in Regina. Several of the clinic's physicians participated in the program. A panel discussion was held which dealt with a number of subjects including isolation perfusion, management of inoperable esophageal carcinoma, the role of adjuvant treatment in carcinoma of the rectum and nutrition of the patient with cancer.

A computerized patient appointment system was implemented in April. This system assigns appointment dates and doctors to all patients who have been given a recall beyond three months. Letters advising patients of these appointments are produced by the system one month prior to the appointment date. The system has provided the clinic physicians with increased flexibility in their day-to-day schedules and has improved services by alleviating overbookings and reducing the waiting time for patients.

In 1982, 2,613 new cases were admitted to the Allan Blair Memorial Clinic. Through the follow-up program, 8,833 cases were reviewed in the clinic while 10,551 were followed by mail. The cases on follow-by-mail are handled through a central computer system which produces the letters and maintains the follow-up and review dates.

The staff of the Physics Department was increased by a physicist and a physics technician. With the addition of these positions, together with grants from the Foundation's research fund, an increase in the level and type of development work has been realized. This staff expansion has also made it possible to improve the provision of Physics Services to the Departments of Nuclear Medicine at the Pasqua Hospital and the Plains Health Centre.

Physics Services has expanded its support to Radiotherapy through improved computer services. Three major programs have been added to the existing systems. These provide for treatment planning support for linac photons, for brachytherapy dosimetry and for intracavitary treatments. The verify/record system has received extensive streamlining. The treatment planning system is being modified to accept a number of planned future enhancements and to integrate it with the verify/record system. A program has been developed to allow the use of a simulator mounted contouring device that allows direct entry of patient outlines into the computer. The treatment planning system was modified to allow the Saskatoon Clinic to access the Regina computer system for their treatment planning needs.

Physics Services has been increasingly active in the areas of research and development. One research assistant is involved in the development of a three dimensional calculation algorithm to be used in CT based treatment planning. Another is working on the development of a micro-processor based, numerically controlled milling machine for compensator production.

The electronics workshop, machine shop and mould room continue to provide the technical support required by Physics Services. Technical support has been significant in the development of new equipment. The major development by electronics has been the design and production of a single board micro-computer for use with the numerically controlled milling machine. It will also serve as an intelligent acquisition system for the contouring device, as a back-up timer with verification capabilities for the cobalt unit, a controller for the water phantom for therapy machine dosimetry and as a controller for the mould room's styrene cutter. The machine shop has completed construction of the contouring device, wax compensator milling machine, table inserts for the linac, Manchester ovoids for intracavitary treatment and vaginal dilators. The design and construction of a new accessory system for the cobalt unit is well underway.

The Social Work Department was involved in many new activities during the year. A community education program was developed to provide an orientation to the services available at the clinic. This involves staff of the Allan Blair Memorial Clinic, the Pasqua Hospital and the Regina Community Home Care Program and has been offered to community health organizations and hospitals in the southern half of the province. The development of a Palliative Care Interest Group is underway. A patient library was introduced allowing patients and their families to borrow books and articles dealing with cancer. A student from the Faculty of Social Work was accepted for a three month practicum.

In 1982, the Social Worker received 175 new patient referrals and conducted 1,592 patient and family interviews. The most frequent reasons for social work involvement were to provide emotional support to patients and their families and to arrange for community care services upon discharge.

The Personal Services Worker provided many services to patients including emotional support, community support information, wig fitting and mastectomy and nutritional information for a total of 1,958 patient contacts. In addition, the Personal Services Worker co-ordinates the day-to-day activities of the Volunteer Program.

The time and effort contributed by the volunteers in the care of patients is gratefully acknowledged as is the grant from the Canadian Cancer Society for the funding of the Personal Services Worker.

Allan Blair Memorial Clinic Staff

Medical

H. G. Whiston, M.B., Ch.B., D.M.R.T., F.R.C.P.(C) — Director
W. A. Bethune, M.B., B.S., D.A.B.R.
G. H. Ewing, M.B., Ch.B., M.R.C.P.(Ed), F.R.C.P. (C)
P. W. Kuan, M.B., D.M.R.(T), F.R.C.P.(C)
S. K. Liem, M.D., D.A.B.R., F.R.C.P.(C)
L. L. Nilson, M.D.
J. H. MacIntosh, M.D.
M. A. Poon, M.B., F.R.C.P.(C)
S. Rayson, M.B., B.S., F.R.C.P.(C)
L. J. Rodrigue, M.D., F.R.C.S.(C), D.A.B.S.

Part Time

C. H. Crosby, B.Sc., M.D., C.M., F.R.C.S.(C), F.A.C.S.
S. Young, B.Sc., M.D., C.M., C.R.C.S.

Consultants

Pathology
D. Dexter, M.R.C. Path., F.R.C.P.(C)

Diagnostic Radiology
H.H. Phillips, M.D., F.R.C.P.(C)

Nurses

V. Curtis — Head Nurse
J. Bartel
M. Gautama
G. Lefebvre
S. McNea
B. Priebe

G. Burk
S. Fraser
T. Hill
F. Moore
— Part Time

Health Record Administrator

K. Hack

Statistics

A. Watson
K. Dorgan
E. Hubick
G. Korol

P. Green
M. Johnson
— Part Time

Records

M. Durston
A. Nimetz
E. Robertus
R. Schondelmier

S. Monson — Part Time

Data Entry

P. Gray

Reception and Admitting

P. Seida
D. Tendler

Medical Typists

C. Bagu
C. Bennett
D. Dunham
J. Holitski
S. Rabak

Physicists

P. B. Morris, B.Sc., Ph.D.
— Chief Medical Physicist
P. A. Dickof, M.Sc.
R. S. Sloboda, B.Sc., Ph.D.
M. G. Schmid, B. Sc., M.Sc.

Physics Support Staff

R. Bardutz
J. Lawrence
I. Hardie

Radiotherapy Technologists

M. Bardutz — Acting Chief Technologist
S. Dickson
P. Featon
B. Green
G. Hewitt
C. Pelzer

C. Klisowsky — Part Time

Research Assistants

T. Daly
D. Getz
B. Orr

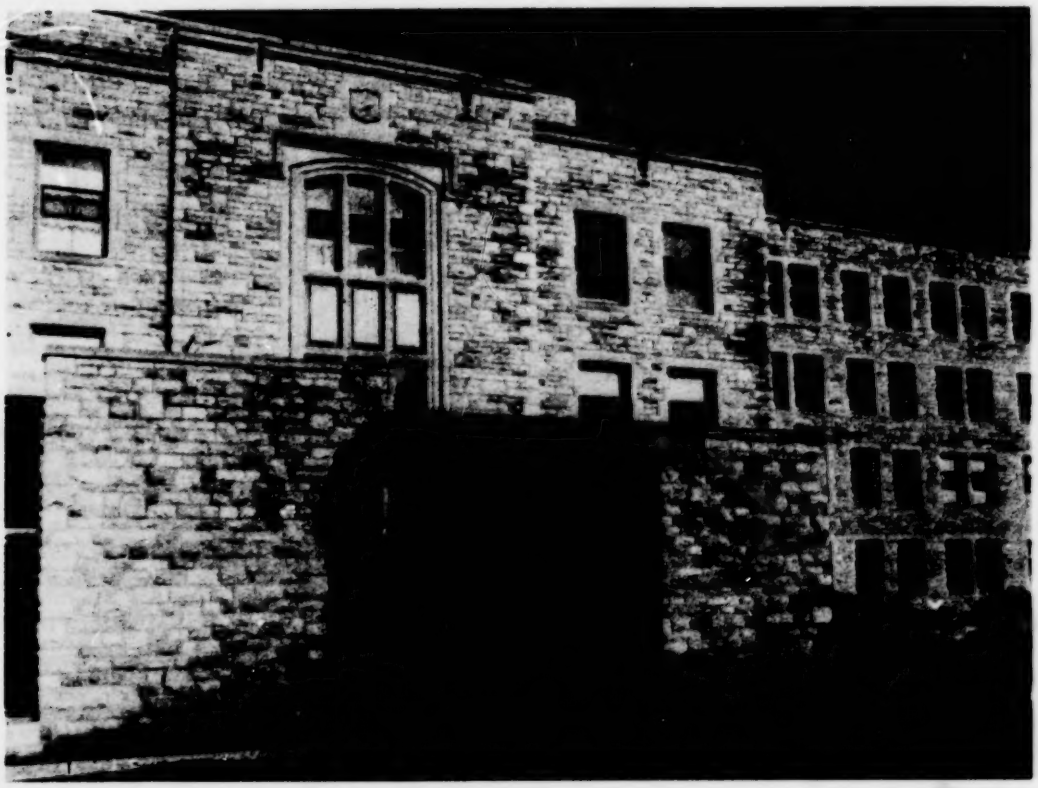
Social Worker

B. Uncles, B.A., B.S.W.

Personal Services Worker

B. Butcher

SASKATOON CANCER CLINIC



REPORT OF THE SASKATOON CANCER CLINIC

1982-83 was a very active and, at times, trying year for the Saskatoon Cancer Clinic.

Staff shortages, particularly in Radiation Oncology towards the end of the year, were of concern. The situation was alleviated with the arrival in January, 1983 of Dr. M. F. Mohamed and Dr. C. T. Ago. The help of Dr. S. K. Liem and Dr. W. A. Bethune of the Allan Blair Memorial Clinic during this difficult time was greatly appreciated. Active recruitment for radiation oncologists continued resulting in the appointment of Dr. D. G. McGowan who will commence as Head of Radiation Oncology in July, 1983. Two additional radiation oncologists are expected to be appointed later in the year.

The shortage of radiotherapy technologists has partially been overcome by employing two technologists from the Foundation's training program. At present, two second-year students and one first-year student are enrolled in the training program.

In Medical Oncology, a heavy clinical workload, educational activities and clinical and laboratory research combined to make it a busy year. The clinical research area has escalated with involvement in the North Central Cancer Treatment Group, the Eastern Co-operative Oncology Group, Lederle Clinical Research as well as the National Cancer Institute of Canada.

In 1982, 2,488 new cases were admitted to the Saskatoon Cancer Clinic. Through the follow-up program, 9,826 cases were reviewed in the clinic while 12,058 were followed by mail. The cases on follow-by-mail are handled through a central computer system which produces the letters and maintains the follow-up and review dates.

The Pediatric Oncology Department, which operates out of both the University Hospital and the Saskatoon Cancer Clinic, has expanded its program with the appointment of a part-time pediatric oncology nurse. In 1982, 23 new cancer patients in the pediatric age group were diagnosed. There were over 400 return visits with 73 admissions to University Hospital. With the ability to determine Methotrexate levels at the University Hospital, most chemotherapy regimens can now be carried out in Saskatoon. Close co-operation with radiation oncology and surgical specialties are maintained through pediatric oncology rounds.

The contribution of the part-time and consultant physicians is gratefully acknowledged as well as that of the following gynecologists who participated in the Gynecological/Oncology Clinic:
Drs. G. B. Gilliland, T. B. MacLachlan, R. H. MacPherson, J. F. O'Keeffe, D. R. Popkin, A. M. Sallam, M. A. Sheridan and R. G. Sugarman.

The nursing staff provided a valuable educational service to student nurses, pharmacy students and others by actively participating in programs for community groups, schools and Continuing Nursing Education.

In Physics Services, major improvements in treatment planning and patient scheduling occurred. Plans were started to replace the treatment planning system, as well as planning for an extension of radiotherapy and physics into new space in the hospital. Improvements in beam shaping blocks resulted from the installation of a hot wire cutter in the mould room.

Dr. A. D. Baillie is directing a graduate student in a project involving testing dose calculation algorithms using a VAX 11/780 computer and CT scans from the GE 8800 scanner in the University Hospital.

In Physics research, the projects developing new techniques to measure patient contours continued. Equipment for digitizing images for use in Moire fringe methods was obtained. The sonics project for a patient positioning system also continued.

Social Services continues to be responsive to the needs of patients by counselling them concerning social or emotional problems, providing information and help concerning transportation, housing, nutrition, home management, dressings, wig fitting and financial needs, and supporting group meetings for patients in the University Hospital hostel. Involvement in educational activities such as lectures and seminars for medical and paramedical groups continued during the year. Workshops for Home Care, Cansurmount and cancer clinic volunteers were also held.

The two Personal Services Workers continued to provide many valuable services to the patients. The grant from the Canadian Cancer Society to fund these positions is greatly appreciated.

The excellent help of the clinic volunteers and the Canadian Cancer Society driver co-ordinators is acknowledged. The contribution of the Order of Foresters and Eastern Star volunteers by providing dressings, wigs, toys and special items was also appreciated.

During the year, construction of a 28 bed patient lodge located near the clinic was completed. This lodge will provide free accommodation for out-of-town ambulatory patients who are receiving treatment at the clinic.

The announcement in March, 1983 of a commitment by the provincial government for funding to provide a new clinic was welcomed. Planning for this new facility will be a high priority in the coming months.

Saskatoon Cancer Clinic Staff

Medical

D. J. Klaassen, B.A., M.D., F.R.C.P.(C) — Director
C. T. Ago, M.B., D.M.R.T., F.R.C.R.
G. R. Armitage, M.D., F.R.C.P.(C.)
A. W. Maksymiuk, .M.D., F.R.C.P.(C)
J. B. McSheffrey, B.A., M.D., F.R.C.P.(C)
M. F. Mohamed, M.B.B.S., E.C.F.M.G., D.M.R.T., F.R.C.R.
A. Naidoo, M.B., Ch.B.
K. V. O'Reilly, B.Sc.M., M.D., C.C.F.P.

Part Time

R. T. Card, M.D., F.R.C.P.(C)
D. Eidinger, M.D., Ph.D.
B. B. Malik, M.D., F.R.C.S.(C)
S. Padmanabh, D.C.P., M.R.C.P. (Ed), F.R.C.P.(C)
L. F. Skinnider, M.B., F.R.C.P. (C)
S. Worobetz, M.D., F.R.C.S.(C)

Consultants

Pathology
H. J. Block, F.R.C.P.(C)
H. E. Emson, F.R.C.P.(C)

Diagnostic Radiology
G. Bray, D.M.R.D., F.R.C.P.(C)
C. S. Houston, M.D., F.R.C.P.(C), F.A.C.R.
H. P. Kent, D.M.R.D., F.A.C.R., F.R.C.P.(C) *Resigned June, 1982
J. G. Monks, F.C.C.P., B.A.O., D.M.R.D., F.R.C.P.(C)

Nurses

S. Cianflone — Head Nurse
B. Bourhis
L. Doherty
M. Grant
D. Hogg
V. Stacey
C. Bichon — Part Time

Health Record Administrator

H. Whittaker — Acting

Statistics

J. Frechette
G. Grimsen
L. Kardynal
M. Lanovaz
R. Jackson — Part Time
F. Lowe — Part Time

Records

N. Butschler
L. Fleming
D. Jaszan
C. Johnson
M. Popplewell — Part Time

Data Entry

L. Miller — Part Time

Reception and Admitting

D. Dyal
F. Dzioduck-Hackman

Medical Typists

A. Greva
S. Boulin
M. Emigh
L. Kurji
D. Leciuk
O. Marriott
D. Melnyk

Physicists

W. B. Reid, B.A., M.A., Ph.D., F.C.C.P.M. — Chief Medical Physicist
A. D. Baillie, B.Sc., Ph.D.
R. Hummel, B.Sc.(EE), M.Sc., Ph.D.

Physics Support Staff

R. Berthiaume
J. McConnell
K. Damm

Physics Secretary

B. Anderson

Radiotherapy Technologists

H. Walker — Chief Technologist
D. Luukkonen
J. Bishop
S. Boyle
T. Cisecki
L. Fisher
E. Goretzky
N. Carlsen — Part Time
D. Rapp — Part Time

Radiotherapy Technologist Students

D. MacDonald
P. Gesiorowski
M. Presber

Research Assistants

W. Potter

Social Worker

E. Skinner, R.S.W.

Personal Services Workers

C. Deering
M. Neufeld

SASKATCHEWAN CANCER FOUNDATION
STATISTICAL TABLES

DISTRIBUTION OF NEW CANCERS BY SITE, SEX AND AGE GROUP — 1982

SITE	Sex	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75-79	80-84	85+	Total
Lip	M							2	1	3	3	9	5	9	6	10	7	4	8	67
	F													1		1		1		3
Oral Cavity	M				2				1	1		4	3	1	2	1	1		3	19
	F						1			1		1			2	4	1	2	2	14
Pharynx and Nasopharynx	M						1				1	2	4	2	1		1			12
	F												2	1					1	4
Oesophagus	M										1	2	1	2	3	4	3		2	16
	F														2	1	1		1	5
Stomach	M					1					3	4	6	5	16	17	15	6	8	81
	F							1		1		4	2	2	1	5	3	3	5	27
Small Intestine	M									1	1				2	3		1	1	9
	F										1	1		1	1	2		1	1	8
Colon	M								2	2	6	6	8	16	21	23	21	15	13	133
	F				1					1	2	5	12	14	14	19	21	20	16	130
Rectum	M								2	2	1	2	7	20	13	17	16	10	7	97
	F							1		2	1	4	5	13	7	14	4	5	6	62
Liver, Gall Bladder, Bile Ducts	M								1			3	1	2	2	3	4	2	2	20
	F							1					1	4		2	3	2	9	22
Pancreas	M										2	3	9	3	13	10	6	5	2	53
	F										1	1	9	8	11	5	7	4	4	50
Larynx	M										1		5	2	2	4	2	3		19
	F									1			1	3	1					6
Lung	M								1	2	7	23	30	41	51	47	41	29	9	281
	F							1	2	2	8	11	17	16	18	15	10	9	8	117
Breast	M														1				2	3
	F					1	2	7	9	21	42	36	42	57	51	46	28	24	22	386
Prostate	M											3	10	33	71	82	90	47	46	382
Testis	M	1			2	4	4	3	1	1	1			2						19
Other Male Organs	M													3	2	2				7
Cervix (Invasive)	F						2	5	1	2	2	2	2	6	2	4	2			30
Cervix (In-situ)	F				3	18	55	55	25	13	5	9	3	3	4	1	1			145
Uterus	F								1	1	5	14	19	18	18	13	5	5	3	106
Ovary	F			1				3	2	4	3	7	12	9	8	11	5	1	1	67
Other Female Organs	F												2	3	1	2	3	3	2	16
Other Urinary Organs	M	1							2		1	3	7	13	11	7	3	4	1	54
	F											2	3	4	6	7	2	5		29
Urinary Bladder	M						1	1	2	4		5	6	13	18	17	19	17	13	116
	F										2	2	3	3	3	4	4	2	7	30
Malignant Melanoma	M				2	2		3	3		1	3	3	3	3			1	2	29
	F				1	1	4	2	2	1	3	1	2	3	4	3	2	3		32
Skin	M			1	1	1	6	3	13	16	16	33	65	82	113	109	87	65	103	714
	F					2	7	5	9	7	14	25	28	51	74	82	77	55	93	529
Brain and Other parts of Nervous System	M	1			1	1		2	2			5	2	3	1	6	1	1		26
	F	1	1	1	1		1	4		3	1		2	3	4	3	1	1		27
Thyroid	M				2			1	2	1			2		1	1		1		11
	F					2	2	6	2	1	4	3	2	2		1	1	1	1	28
Bone and Cartilage	M		1	1	1	3	1					2				1	1			11
	F		2		1	1														4
Soft Tissue	M				1	1			2	1		1		1	1		1		1	10
	F		1				1	1	1							1	3	4	1	13
Hodgkin's Disease	M			1		1	2		2	3	1			3		1			1	15
	F		1		3	1	1	1					1	1		1		1		11
Lymphoid Tissue	M				1	3	2		4	2	3	3	7	5	8	8	10	1	2	59
	F	1						2	1	2	1	1	6	10	3	2	3	3	2	37
Leukemia	M		1		2	2	2		1	1	2	7	5	9	6	12	10	12	2	74
	F	1				1	1	1	1	1	2	4	3	7	5	3	2	3	6	47
Multiple Myeloma	M									1		3		2	1	6	6	1	3	23
	F								1				4	2	1	1	4	3	1	17
Miscellaneous	M	2				1	2	3			2	1	5	5	6	1	2		1	31
	F				2					2		1	1	2		1	2	2		13
Primary Unknown	M													3	1	1	1	1		7
	F											1	1	1			1	2		6
Secondary	M										1	2	7	2	7	6	3	3	3	34
	F									1		1	1	4	4	6	5	1	5	28
In Situ	M							1			1	2	5	6	13	7	5	7	6	53
	F						2			1	2	6	5	4	7	4	6	2	5	44
Total – All Sites	M	5	2	3	15	20	21	19	42	42	55	131	203	291	396	409	356	236	241	2,487
	F	3	5	2	12	27	79	96	57	68	99	142	191	256	257	270	211	168	202	2,145
Total		8	7	5	27	47	100	115	99	110	154	273	394	547	653	679	567	404	443	4,632

INCIDENCE OF CANCER PER 100,000 POPULATION
1980, 1981, 1982

Site	Total Population (1)						Population at Risk (2)					
	1980		1981		1982		1980		1981		1982	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
Lip	16.4	1.0	17.0	1.4	13.3	0.6	41.7	2.5	43.2	3.4	33.7	1.4
Oral Cavity	4.6	3.3	4.0	4.5	3.8	2.8	11.8	8.0	10.2	10.8	9.5	6.8
Pharynx & Nasopharynx	2.4	1.0	3.0	0.8	2.4	0.8	6.2	2.5	7.6	2.0	6.0	1.9
Oesophagus	3.6	0.6	3.0	0.8	3.6	1.0	9.3	1.5	7.6	2.0	9.0	2.4
Stomach	15.8	8.2	11.0	6.7	16.1	5.4	40.1	19.9	28.0	16.2	40.7	13.0
Small Intestine		0.6	1.2	0.8	1.8	1.6		1.5	3.1	2.0	4.5	3.9
Colon	27.5	28.1	25.7	32.7	26.4	26.1	69.9	68.2	65.2	79.1	66.8	62.7
Rectum	21.4	15.4	22.5	10.4	19.3	12.5	54.5	37.3	57.1	25.1	48.7	29.9
Liver, Gall Bladder & Bile Ducts	3.8	4.7	4.6	5.5	4.0	4.4	9.8	11.4	11.7	13.3	10.1	10.6
Pancreas	11.3	8.4	9.6	7.3	10.5	10.1	28.8	20.4	24.5	17.7	26.6	24.1
Larynx	4.9	0.4	7.0	0.2	3.8	1.2	12.3	1.0	17.8	0.5	9.5	2.9
Lung	62.7	17.8	60.2	19.5	55.9	23.5	159.4	43.3	152.9	47.2	141.2	56.4
Breast	0.4	79.0	0.4	86.6	0.6	78.0	1.0	191.5	1.0	209.3	1.5	187.2
Prostate	87.1		92.2		75.9		221.6		234.5		192.0	
Testis*	3.6		2.6		3.8		8.1		6.4		8.5	
Other Male Organs	0.8		0.8		1.4		2.1		2.0		3.5	
Cervix (Invasive)†		11.9		5.7		6.0		22.8		10.4		11.1
Cervix (In-Situ)†		34.3		45.1		39.2		87.1		111.8		97.0
Uterus		18.0		23.0		21.3		43.8		55.5		51.1
Ovary		15.4		12.4		13.5		37.3		30.0		32.3
Other Female Organs		3.9		1.8		3.2		9.5		4.4		7.7
Other Urinary Organs	9.9	5.1	12.0	4.3	10.7	5.8	25.2	12.4	30.6	10.3	27.1	14.0
Urinary Bladder	21.4	5.9	27.1	8.3	23.1	6.0	54.5	14.4	68.8	20.1	58.3	14.5
Malignant Melanoma (Skin)	4.9	6.2	6.0	8.9	5.8	6.4	12.3	14.9	15.3	21.6	14.6	15.4
Skin	156.8	118.3	149.2	113.2	141.9	106.3	399.0	287.1	379.2	273.7	358.8	255.2
Brain & Nervous System	8.1	4.7	7.0	4.7	5.2	5.4	20.6	11.4	17.8	11.3	13.1	13.0
Thyroid	2.0	5.9	1.6	5.9	2.2	5.6	5.1	14.4	4.1	14.3	5.5	13.5
Bone & Cartilage	1.0	0.6	0.6	0.2	2.2	0.8	2.6	1.5	1.5	0.5	5.5	1.9
Soft Tissue	2.8	2.7	2.6	2.2	2.0	2.6	7.2	6.5	6.6	5.4	5.0	6.3
Hodgkin's Disease*	4.0	1.0	3.2	1.4	3.0	2.2	8.1	1.4	6.7	1.9	4.8	2.9
Lymphoid Tissue	15.8	10.5	12.0	10.4	11.7	7.4	40.1	25.4	30.6	25.1	29.6	17.8
Leukemia	12.5	9.0	11.2	9.8	14.7	9.4	31.9	21.9	28.5	23.6	37.2	22.7
Multiple Myeloma	5.5	4.1	5.6	2.0	4.6	3.4	13.9	10.0	14.3	4.9	11.6	8.2
Miscellaneous	3.0	3.3	4.8	2.2	6.2	2.6	7.7	8.0	12.2	5.4	15.6	6.3
Primary Unknown	1.0	1.4	0.4	0.6	1.4	1.2	2.6	3.5	1.0	1.5	3.5	2.9
Secondary Site	5.9	6.8	7.0	6.5	6.8	5.6	14.9	16.4	17.8	15.7	17.1	13.5
In-situ Cancers	14.6	13.6	8.2	15.1	10.5	8.8	37.0	32.9	20.9	36.4	26.6	21.2
Total – All Sites	535.6	451.2	523.5	460.9	494.4	431.1	1,362.6	1,094.5	1,330.8	1,114.5	1,249.7	1,034.7
Total – All Sites – **Both Sexes**	**493.7**		**492.3**		**462.7**		**1,226.1**		**1220.7**		**1139.9**	

Note: (1) Population Statistics, 1980 based on Saskatchewan Hospital Services Plan, Covered Population, 1980
Population Statistics, 1981 based on Saskatchewan Hospital Services Plan, Covered Population, 1981
Population Statistics, 1982 based on Saskatchewan Hospital Services Plan, Covered Population, 1982

Note: (2) Population at Risk is 35 years of age and older, except for: *15 years of age and older, † 20 years of age and older

SASKATCHEWAN CANCER FOUNDATION
STATISTICAL TABLES

DISTRIBUTION OF NEW CANCERS BY SITE, SEX AND AGE GROUP — 1982

SITE	Sex	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75-79	80-84	85+	Total
Lip	M							2	1	3	3	9	5	9	6	10	7	4	8	67
	F													1		1		1		3
Oral Cavity	M				2				1	1		4	3	1	2	1	1		3	19
	F						1			1		1			2	4	1	2	2	14
Pharynx and	M						1				1	2	4	2	1		1			12
Nasopharynx	F												2	1					1	4
Oesophagus	M										1	2	1	2	3	4	3		2	18
	F														2	1	1		1	5
Stomach	M					1					3	4	6	5	16	17	15	6	8	81
	F							1		1		4	2	2	1	5	3	3	5	27
Small Intestine	M									1	1				2	3		1	1	9
	F										1	1		1	1	2		1	1	8
Colon	M								2	2	6	6	8	16	21	23	21	15	13	133
	F				1					1	2	5	12	14	19	19	21	20	16	130
Rectum	M								2	2	1	2	7	20	13	17	16	10	7	97
	F							1		2	1	4	5	13	7	14	4	5	6	62
Liver, Gall	M								1			3	1	2	2	3	4	2	2	20
Bladder, Bile Ducts	F							1					1	4		2	3	2	9	22
Pancreas	M										2	3	9	3	13	10	6	5	2	53
	F										1	1	9	8	11	5	7	4	4	50
Larnyx	M										1		5	2	2	4	2	3		19
	F									1			1	3	1					6
Lung	M								1	2	7	23	30	41	51	47	41	29	9	281
	F							1	2	2	8	11	17	16	18	15	10	9	8	117
Breast	M														1				2	3
	F					1	2	7	9	21	42	38	42	57	51	46	28	24	22	388
Prostate	M											3	10	33	71	82	90	47	46	382
Testis	M	1			2	4	4	3	1	1	1			2						19
Other Male Organs	M													3	2	2				7
Cervix (Invasive)	F						2	5	1	2	2	2	2	6	2	4	2			30
Cervix (In-situ)	F				3	18	55	55	25	13	5	9	3	3	4	1	1			195
Uterus	F								1	1	5	14	19	18	18	13	9	5	3	106
Ovary	F			1				3	2	4	3	7	12	9	8	11	5	1	1	67
Other Female Organs	F												2	3	1	2	3	3	2	16
Other Urinary Organs	M	1							2	1	1	3	7	13	11	7	3	4	1	54
	F											2	3	4	6	7	2	5		29
Urinary Bladder	M						1	1	2	4		5	6	13	18	17	19	17	13	116
	F										2	2	3	3	3	4	4	2	7	30
Malignant Melanoma	M				2	2		3	3		1	3	3	3	3	3		1	2	29
	F				1	1	4	2	2	1	3	1	2	3	4	3	2	3		32
Skin	M			1	1	1	6	3	13	16	16	33	65	82	113	109	87	65	103	714
	F					2	7	5	9	7	14	25	28	51	74	82	77	55	93	529
Brain and Other parts of	M	1			1	1		2	2			5	2	3	1	6	1	1		26
Nervous System	F	1	1	1	1		1	4		3	1		2	3	4	3	1	1		27
Thyroid	M				2			1	2	1			2		1	1		1		11
	F					2	2	6	2	1	4	3	2	2		1	1	1	1	28
Bone and	M		1	1	1	3	1					2				1	1			11
Cartilage	F		2		1	1														4
Soft Tissue	M				1	1			2	1		1		1	1		1		1	10
	F		1				1	1	1							1	3	4	1	13
Hodgkin's Disease	M			1		1	2		2	3	1			3		1			1	15
	F		1		3	1	1	1					1	1		1		1		11
Lymphoid Tissue	M				1	3	2		4	2	3	3	7	5	8	8	10	1	2	59
	F	1						2	1	2	1	1	6	10	3	2	3	3	2	37
Leukemia	M		1		2	2	2		1	1	2	7	5	9	6	12	10	12	2	74
	F	1				1	1	1	1	1	2	4	3	7	5	9	2	3	6	47
Multiple Myeloma	M									1		3		2	1	6	6	1	3	23
	F								1				4	2	1	1	4	3	1	17
Miscellaneous	M	2				1	2	3			2	1	5	5	6	1	2		1	31
	F				2					2		1	1	2		1	2	2		13
Primary Unknown	M													3	1	1	1	1		7
	F											1	1	1			1	2		6
Secondary	M										1	2	7	2	7	6	3	3	3	34
	F									1		1	1	4	4	6	5	1	5	28
In-Situ	M							1			1	2	5	6	13	7	5	7	6	53
	F						2			1	2	6	5	4	7	4	6	2	5	44
Total — All Sites	M	5	2	3	15	20	21	19	42	42	55	131	203	291	396	409	356	236	241	2,487
	F	3	5	2	12	27	79	96	57	68	99	142	191	256	257	270	211	168	202	2,145
Total		8	7	5	27	47	100	115	99	110	154	273	394	547	653	679	567	404	443	4,632

INCIDENCE OF CANCER PER 100,000 POPULATION 1980, 1981, 1982

Site	Total Population (1)						Population at Risk (2)					
	1980		1981		1982		1980		1981		1982	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
Lip	16.4	1.0	17.0	1.4	13.3	0.6	41.7	2.5	43.2	3.4	33.7	1.4
Oral Cavity	4.6	3.3	4.0	4.5	3.8	2.8	11.8	8.0	10.2	10.8	9.5	6.8
Pharynx & Nasopharynx	2.4	1.0	3.0	0.8	2.4	0.8	6.2	2.5	7.6	2.0	6.0	1.9
Oesophagus	3.6	0.6	3.0	0.8	3.6	1.0	9.3	1.5	7.6	2.0	9.0	2.4
Stomach	15.8	8.2	11.0	6.7	16.1	5.4	40.1	19.9	28.0	16.2	40.7	13.0
Small Intestine		0.6	1.2	0.8	1.8	1.6		1.5	3.1	2.0	4.5	3.9
Colon	27.5	28.1	25.7	32.7	26.4	26.1	69.9	68.2	65.2	79.1	66.8	62.7
Rectum	21.4	15.4	22.5	10.4	19.3	12.5	54.5	37.3	57.1	25.1	48.7	29.9
Liver, Gall Bladder & Bile Ducts	3.8	4.7	4.6	5.5	4.0	4.4	9.8	11.4	11.7	13.3	10.1	10.6
Pancreas	11.3	8.4	9.6	7.3	10.5	10.1	28.8	20.4	24.5	17.7	26.6	24.1
Larynx	4.9	0.4	7.0	0.2	3.8	1.2	12.3	1.0	17.8	0.5	9.5	2.9
Lung	62.7	17.8	60.2	19.5	55.9	23.5	159.4	43.3	152.9	47.2	141.2	56.4
Breast	0.4	79.0	0.4	86.6	0.6	78.0	1.0	191.5	1.0	209.3	1.5	187.2
Prostate	87.1		92.2		75.9		221.6		234.5		192.0	
Testis*	3.6		2.6		3.8		8.1		6.4		8.5	
Other Male Organs	0.8		0.8		1.4		2.1		2.0		3.5	
Cervix (Invasive)†		11.9		5.7		6.0		22.8		10.4		11.1
Cervix (In-Situ)†		34.3		45.1		39.2		87.1		111.8		97.0
Uterus		18.0		23.0		21.3		43.8		55.5		51.1
Ovary		15.4		12.4		13.5		37.3		30.0		32.3
Other Female Organs		3.9		1.8		3.2		9.5		4.4		7.7
Other Urinary Organs	9.9	5.1	12.0	4.3	10.7	5.8	25.2	12.4	30.6	10.3	27.1	14.0
Urinary Bladder	21.4	5.9	27.1	8.3	23.1	6.0	54.5	14.4	68.8	20.1	58.3	14.5
Malignant Melanoma (Skin)	4.9	6.2	6.0	8.9	5.8	6.4	12.3	14.9	15.3	21.6	14.6	15.4
Skin	156.8	118.3	149.2	113.2	141.9	106.3	399.0	287.1	379.2	273.7	358.8	255.2
Brain & Nervous System	8.1	4.7	7.0	4.7	5.2	5.4	20.6	11.4	17.8	11.3	13.1	13.0
Thyroid	2.0	5.9	1.6	5.9	2.2	5.6	5.1	14.4	4.1	14.3	5.5	13.5
Bone & Cartilage	1.0	0.6	0.6	0.2	2.2	0.8	2.6	1.5	1.5	0.5	5.5	1.9
Soft Tissue	2.8	2.7	2.6	2.2	2.0	2.6	7.2	6.5	6.6	5.4	5.0	6.3
Hodgkin's Disease*	4.0	1.0	3.2	1.4	3.0	2.2	8.1	1.4	6.7	1.9	4.8	2.9
Lymphoid Tissue	15.8	10.5	12.0	10.4	11.7	7.4	40.1	25.4	30.6	25.1	29.6	17.8
Leukemia	12.5	9.0	11.2	9.8	14.7	9.4	31.9	21.9	28.5	23.6	37.2	22.7
Multiple Myeloma	5.5	4.1	5.6	2.0	4.6	3.4	13.9	10.0	14.3	4.9	11.6	8.2
Miscellaneous	3.0	3.3	4.8	2.2	6.2	2.6	7.7	8.0	12.2	5.4	15.6	6.3
Primary Unknown	1.0	1.4	0.4	0.6	1.4	1.2	2.6	3.5	1.0	1.5	3.5	2.9
Secondary Site	5.9	6.8	7.0	6.5	6.8	5.6	14.9	16.4	17.8	15.7	17.1	13.5
In-situ Cancers	14.6	13.6	8.2	15.1	10.5	8.8	37.0	32.9	20.9	36.4	26.6	21.2
Total — All Sites	535.6	451.2	523.5	460.9	494.4	431.1	1,362.6	1,094.5	1,330.8	1,114.5	1,249.7	1,034.7
Total — All Sites — Both Sexes	493.7		492.3		462.7		1,226.1		1220.7		1139.9	

Note: (1) Population Statistics, 1980 based on Saskatchewan Hospital Services Plan, Covered Population, 1980.
Population Statistics, 1981 based on Saskatchewan Hospital Services Plan, Covered Population, 1981.
Population Statistics, 1982 based on Saskatchewan Hospital Services Plan, Covered Population, 1982.

Note: (2) Population at Risk is 35 years of age and older, except for: *15 years of age and older, † 20 years of age and older.

Number of New Cases Admitted and Patient Examinations by Patient Type and Clinic 1981 and 1982

	Allan Blair Memorial Clinic Regina		Saskatoon Cancer Clinic		Total Both Clinics	
Patient Type	**1981**	**1982**	**1981**	**1982**	**1981**	**1982**
New Cases						
Malignant	2,395	2,331	2,513	2,279	4,908	4,610
Benign	218	140	248	104	466	244
Still Under Investigation December 31	91	142	19	105	110	247
Total	2,704	2,613	2,780	2,488	5,484	5,101
Review Patient Visits						
Follow Up at Clinic	9,698	8,833	10,453	9,926	20,151	18,759
Follow Up Elsewhere	7,245	18,109	13,498	16,831	20,743	34,940
Total	16,943	26,942	23,951	26,757	40,894	53,699
Grand Total	19,647	29,555	26,731	29,245	46,378	58,800

An analysis of the distribution of new cancers diagnosed in 1982 by cancer site, sex, and age group is included on page 22 of this report. These distributions do not include neoplasms of uncertain behavior which are counted as benign in the above table.

Number of Patients Treated by Radiation 1981 and 1982

Type of Radiation	Allan Blair Memorial Clinic Regina		Saskatoon Cancer Clinic		Total Both Clinics	
Treatment	**1981**	**1982**	**1981**	**1982**	**1981**	**1982**
Betatron			234	272	234	272
Linear Accelerator	7	312			7	312
Cobalt	665	871	713	557	1,378	1,428
X-ray	73	175	160	75	233	250
Interstitial and Intracavitary	36	24	31	30	67	54
Gold Grains	9	1	9	4	18	5
Beta-ray	9	14	4	4	13	18
Other (P32, I131)			26	16	26	16
Total	799	1,397	1,177	958	1,976	2,355

SASKATCHEWAN CANCER FOUNDATION
FINANCIAL STATEMENTS
Year Ended March 31, 1983

AUDITOR'S REPORT

To the Members of the Legislative Assembly
Province of Saskatchewan

I have examined the balance sheets of the Saskatchewan Cancer Foundation as at March 31, 1983 and the statements of general fund revenue and expenditure, general fund balance, trust fund revenue, expenditure and fund balance, research fund revenue and expenditure, and research fund balance for the year then ended. My examination was made in accordance with generally accepted auditing standards, and accordingly included such tests and other procedures as I considered necessary in the circumstances.

In my opinion, these financial statements present fairly the financial position of the Saskatchewan Cancer Foundation as at March 31, 1983 and the results of its operations for the year then ended in accordance with generally accepted accounting principles applied on a basis consistent with that of the preceding year.

W. G. Lutz, F.C.A.,
Provincial Auditor.

Regina, Saskatchewan,
August 17, 1983.

Number of New Cases Admitted and Patient Examinations by Patient Type and Clinic 1981 and 1982

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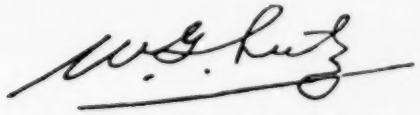

Regina, Saskatchewan,
August 17, 1983.

W. G. Lutz, F.C.A.,
Provincial Auditor.

Statement 1

GENERAL FUND
BALANCE SHEET
As at March 31

	1983	1982
ASSETS		
Current		
Cash and short-term investments	$1,123,215	$ 329,638
Grant receivable – Province of Saskatchewan	–	919,385
Accounts receivable and accrued interest	20,523	62,064
Prepaid expenses	10,828	7,148
Due from Trust and Research Funds	–	444
Total current assets	1,154,566	1,318,679
Fixed		
Equipment, furnishings and leasehold alterations, at cost (Note 1)	3,667,317	3,399,945
Less: Accumulated depreciation	1,603,624	1,278,575
	2,063,693	2,121,370
	$3,218,259	$3,440,049
LIABILITIES AND FUND BALANCE		
Current		
Accounts payable and accrued charges	$ 556,188	$1,024,412
Deferred Revenue	45,564	5,120
Total liabilities	601,752	1,029,532
Fund balance (Statement 3)	2,616,507	2,410,517
	$3,218,259	$3,440,049

(See accompanying notes to the financial statements)

Statement 2

GENERAL FUND
STATEMENT OF REVENUE AND EXPENDITURE
Year Ended March 31

	1983	1982
Revenue		
Grants – Province of Saskatchewan	$11,055,086	$10,125,523
– Canadian Cancer Society	69,719	54,435
– other	56,639	13,715
Investment income	240,912	225,613
Charges to non-residents	20,987	15,264
Proceeds from disposal of equipment	5,243	6,739
Other income	58,886	72,432
	11,507,472	10,513,721
Expenditures		
Salaries and employee benefits	5,046,606	4,464,085
Medical services	3,564,498	3,054,047
Drugs, medical and surgical supplies	874,942	653,406
Purchased services		
– diagnostic radiology	298,743	281,013
– laboratory services	197,259	191,653
– isotope services	152,075	160,436
Computer services	203,995	156,160
Equipment purchases and leasehold alterations (Note 1)	278,078	843,634
Repair and maintenance of clinic equipment	64,392	78,750
Other expenditures	587,621	521,113
	11,268,209	10,404,297
Excess of revenue over expenditures	$ 239,263	$ 109,424

(See accompanying notes to the financial statements)

Statement 3

GENERAL FUND
STATEMENT OF FUND BALANCE
Year Ended March 31

	1983	1982
Equity in fixed assets		
Balance, beginning of year	$2,121,370	$1,534,001
Fixed asset acquisitions:		
– purchased by general fund, net of disposals	267,959	835,855
– purchased by trust fund	15,957	26,613
– donated	1,228	33,984
	2,406,514	2,430,453
Provision for depreciation	342,821	309,083
Balance, end of year	2,063,693	2,121,370
Unappropriated fund balance		
Balance, beginning of year	289,147	113,328
Adjustment of prior year's estimated wage settlement	24,404	–
Final settlement payment from Province of Saskatchewan for previous year	–	66,395
Excess of revenue over expenditure (Statement 2)	239,263	109,424
Balance, end of year	552,814	289,147
Fund balance, end of year	$2,616,507	$2,410,517

(See accompanying notes to the financial statements)

Statement 4

TRUST FUND
BALANCE SHEET
As at March 31

	1983	1982
ASSETS		
Cash and short-term investments	$399,016	$335,606
Accounts receivable	–	1,772
	$399,016	$337,378
Liabilities and Fund Balance		
Accounts payable	$ 9,676	$2,238
Due to General Fund	–	32
Total liabilities	9,676	2,270
Fund balance (Statement 5)	389,340	335,108
	$399,016	$337,378

(See accompanying notes to the financial statements)

Statement 5

TRUST FUND
STATEMENT OF REVENUE, EXPENDITURE AND FUND BALANCE
Year Ended March 31

	1983	1982
Revenue:		
Donations	$ 36,303	$ 63,571
Investment income	44,446	50,751
Contributions to dressing preparation project – "Eastern Star"	1,802	6,796
	82,551	121,118
Expenditure:		
Equipment purchases	15,962	26,612
Patients personal services	7,633	7,726
Materials for dressing preparation project	1,790	6,791
Library	1,172	2,216
Research	–	3,600
Other	1,762	1,303
	28,319	48,248
Excess of revenue over expenditure	54,232	72,870
Fund balance, beginning of year	335,108	262,238
Fund balance, end of year	$389,340	$335,108

(See accompanying notes to the financial statements)

Statement 6

RESEARCH FUND
BALANCE SHEET
As at March 31

	1983	1982
ASSETS		
Current:		
Cash and short-term investments	$338,177	$220,812
Prepaid expenses	2,900	–
Total current assets	341,077	220,812
Fixed:		
Equipment and furnishings, at cost (Note 1)	130,117	67,085
Less: Accumulated depreciation	17,889	5,781
	112,228	61,304
	$453,305	$282,116
LIABILITIES AND FUND BALANCE		
Current:		
Accounts payable and accrued charges	$ 6,756	$ 4,653
Due to General Fund	–	412
Total current liabilities	6,756	5,065
Fund balance, (Statement 8)	446,549	277,051
	$453,305	$282,116

(See accompanying notes to the financial statements)

Statement 7

RESEARCH FUND
STATEMENT OF REVENUE AND EXPENDITURE
Year Ended March 31

	1983	1982
Revenue:		
Grant – Province of Saskatchewan (Note 4)	$313,500	$285,000
– other	5,120	–
Investment income	41,809	40,008
	360,429	325,008
Expenditure:		
Expenditure on research projects (Schedule 1)	241,855	109,261
Excess of revenue over expenditure	$118,574	$215,747

(See accompanying notes to the financial statements)

Statement 8

RESEARCH FUND
STATEMENT OF FUND BALANCE
Year Ended March 31

	1983	1982
Equity in fixed assets:		
Balance, beginning of year	$ 61,304	$ –
Additions during year	63,032	67,085
	124,336	67,085
Provision for depreciation	12,108	5,781
Balance, end of year	112,228	61,304
Unappropriated equity:		
Balance, beginning of year	215,747	–
Excess of revenue over expenditure (Statement 7)	118,574	215,747
Balance, end of year	334,321	215,747
Fund balance, end of year	$446,549	$277,051

(See accompanying notes to the financial statements)

NOTES TO FINANCIAL STATEMENTS

March 31, 1983

1. **Accounting Policies**

(a) **Fixed Assets and Depreciation**

The Saskatchewan Cancer Foundation utilizes fund accounting wherein all revenues and expenditures including those for fixed assets appear in the statement of revenue and expenditure. To maintain accountability for fixed assets, it is necessary to record them as an asset with a corresponding entry to "equity in fixed assets". All fixed assets costing $100 or more are recorded in this manner.

Fixed assets purchased through the Trust Fund are presented as assets of the General Fund. These acquisitions are not included in the fixed asset expenditures of the General Fund but are included in the Trust Fund expenditures. Assets purchased by the Research Fund are recorded as assets of that fund. The value of donated assets are recorded in the General Fund as a direct credit to "equity in fixed assets".

Fixed assets of the Foundation are depreciated on a straight-line basis over their estimated useful lives at rates ranging from 5 to 20% per annum.

As the acquisition of fixed assets is primarily financed by government grants, a provision for depreciation does not appear in the statement of operations but is charged to "equity in fixed assets" to reflect the decrease in the undepreciated cost of the fixed assets.

b) **Operating Surplus or Deficit**

Any operating surplus, exclusive of donations and investment income, is repayable to the Department of Health in the subsequent fiscal year. A deficit on operations is the responsibility of the Saskatchewan Cancer Foundation unless a prior commitment for reimbursement is recognized by the Department of Health. Such reimbursements, when received in subsequent fiscal years, are credited to "unappropriated fund balance".

2. **Legal Status of Saskatchewan Cancer Foundation**

The Foundation was created under provisions of The Saskatchewan Cancer Foundation Act, 1979 and commenced operations on August 1, 1979.

Under Section 38(1) of the Act, the Foundation acquired ownership of the assets and rights and assumed responsibility for the debts, liabilities, and obligations of the Government of Saskatchewan and the Saskatchewan Cancer Commission relating to the operation of the clinics in Regina and Saskatoon under The Cancer Control Act.

3. **Restricted Trust Funds**

Certain contributions to the Trust Fund are designated by the contributors to be used for such purposes as cancer research, equipment and library books. The Foundation maintains a continuous record of the funds contributed and spent for each of the designated purposes until such funds are fully utilized. At March 31, 1983 a balance of $57,758 ($47,641 at March 31, 1982) remained to be used for the purposes designated by the contributors.

4. Research Fund

In the 1981-82 fiscal year, the Province of Saskatchewan provided an initial grant to enable the Foundation to establish a research department and to commence a number of research projects. A grant was received during the current year and the Department of Health has advised that a further grant will be provided during the 1983-84 fiscal year. The Province has attached the following guidelines to the grants:

a) the expenditure of the grant will be at the discretion of the Foundation. The Foundation will assume responsibility for research costs in excess of the amount granted;

b) research funds, including investment income on the funds, will be kept separate from other funds of the Foundation.

The Foundation has met these guidelines by establishing the Research Fund separate from other funds of the Foundation.

At March 31, 1983 the Research Fund was committed to expenditures totalling $221,367 ($219,939 at March 31, 1982).

5. Deferred Revenue

The foundation was committed to an expenditure of $40,514 for major equipment at March 31, 1983. Provincial grant funds had already been received in the 1982-83 fiscal year for the purchase of this equipment and have been presented as deferred revenue.

Schedule 1

RESEARCH FUND
SCHEDULE OF EXPENDITURES ON RESEARCH PROJECTS

Year Ended March 31

	1983	1982
Participation in North Central Cancer Treatment Group	$ 17,724	$ 1,336
Laboratory Establishment Grant, Saskatoon	32,170	65,208
Tissue Culture Project, Regina	32,226	20,041
Hyperthermia Project, Regina	5,070	3,102
Automatic Compensator Project, Regina	5,851	9,910
Lymphoma Culture Project, Saskatoon	14,025	9,579
Human Tumor Stem Cell Assay, Saskatoon	49,365	–
Lymphoma Culture Equipment Grant, Saskatoon	12,169	–
Ceruloplasmin Level Survey, Saskatoon	11,540	–
Patient Positioning Devices Project, Saskatoon	25,314	–
Optical Patient Contour Measurement Project, Saskatoon	16,066	–
Eldorado Nuclear Survey	5,120	–
Extension of Treatment Planning Function, Regina	4,946	–
Video Digitizer Project, Regina	349	85
Lung Cancer and Farming Study, Saskatoon	9,900	–
	$241,855	$109,261

Note:
The presentation of Research Fund expenditures has been changed to reflect expenditures by project rather than by nature of expenditure. The comparative figures have been reclassified accordingly.

RESEARCH PROJECTS

MEMBERSHIP IN NORTH CENTRAL CANCER TREATMENT GROUP

Klaassen, D. J. and Poon, M. A. in collaboration with the Medical Staffs of the Saskatoon Cancer Clinic, Saskatoon and the Allan Blair Memorial Clinic, Regina

The North Central Cancer Treatment Group is a co-operative oncology group based out of the Mayo Clinic, with the purpose of developing and managing co-operative trials concerning clinical treatment programs in cancer. These trials cover a variety of cancer sites and treatment modalities, although the majority of the studies are with chemotherapeutic agents. The group also participates in studies of a large major American oncology group, the Eastern Co-operative Oncology Group. Participation has been approved by the University of Saskatchewan Ethics Committee. Funding is provided for Data Manager, Oncology Nurse help, as well as travel to bi-annual work meetings of the group. This research project is equally shared by both clinics and represents a major research activity of the Foundation.

PARTICIPATION IN CLINICAL TRIALS OF THE NATIONAL CANCER INSTITUTE OF CANADA CLINICAL TRIALS GROUP

Klaassen, D. J. in collaboration with the Medical Staffs of the Saskatoon Cancer Clinic, Saskatoon, the Allan Blair Memorial Clinic, Regina and Lowe, F. (Data Manager)

The Saskatoon Cancer Clinic continues its very active participation in the many trials of this group, including studies in melanoma, myeloma, lung cancer, colon cancer, ovarian cancer and malignant lymphomas.

INTERNATIONAL STUDY OF SECOND PRIMARIES FOLLOWING RADIATION FOR CANCER OF CERVIX

Klaassen, D. J., Whiston, H. G. and Robson, D. L. in collaboration with the International Agency for Research on Cancer (IARC)

This is a case-control study of second primary cancers in women treated by radiation for cervical cancers. The study will evaluate the effects of radiation treatment as well as other risk factors on the development of new cancers. Data extraction will be completed in 1983.

EVALUATION OF UNORTHODOX TREATMENT (IN PATIENTS REGISTERED WITH THE ALLAN BLAIR MEMORIAL CLINIC, REGINA)

Bryant, A. J. S. and Crosby, C. H.

A detailed review of all available information to assess the effect of unorthodox treatment methods on 192 patients reviewed at the Clinic from 1943 to 1982 inclusive. Data extraction will be completed in 1983.

C.A.R. THYROID CANCER AUDIT — 1958-1978

Bethune, W. A.

A national survey of thyroid cancer to help to determine whether or not radiation induced thyroid cancers behave differently from others. A review of 200 cases from the years 1958 to 1978 is being completed in co-operation with the C.A.R.

LYMPHOMA COLONY GROWTH WITH CONDITIONED MEDIUM AND OTHER MITAGENIC AGENTS

Maksymiuk, A. W.

This project, in collaboration with Dr. L. Skinnider, is evaluating the in-vitro colony growth of malignant B lymphocytes using plant lectins, tumor promotors and growth factors. Correlation of growth characteristics with surface marker analysis by fluorescent microscopy of cultured cells and clinical characteristics of patients studied are included.

OPTICAL PATIENT CONTOUR MEASUREMENT

Baillie, A. D.

Optical methods of obtaining patient external contours are being investigated. Being non-contact, these should provide more accurate data. The data will describe three-dimensional surface and will allow more comprehensive treatment planning with little or no increase in data acquisition time.

USE OF THE HUMAN TUMOR STEM CELL ASSAY (HTSCA) IN STUDIES ON CELL GROWTH REGULATION AND CANCER CHEMOTHERAPY: EFFECT OF ANTI-CALMODULIN AGENTS

Hickie, R. A. and Klaassen, D. J.

Calmodulin (CaM) is an intracellular Ca^{2+}-binding protein that has been shown recently to be increased in cancer cells. Since CaM is believed to promote the growth and multiplication of cells, we have postulated that agents which selectively bind to (and reversibly inactivate) the excess cellular CaM should inhibit the growth of tumor cells. In the present study we tested this hypothesis by examining the efficacy of various chemical classes of anticalmodulin agents (e.g. phenothiazines, butyrophenomes, naphthalene sulfonamides, and imidazolium derivative) on the soft agar clonogenic ability of several human tumor cell types (breast, lung, colon, ovary, melanoma and myeloma). The results of these studies showed that all agents possessing anticalmodulin activity in-vitro (i.e. inhibition of calmodulin-dependent enzymes) were able to inhibit the colony-forming ability of the six tumor types. The relative potency of colony inhibition was found to be proportional to the enzyme inhibiting potency. In addition, chemical analogs of anticalmodulin drugs which have a lower in-vitro affinity for calmodulin, are also less able to inhibit proliferation and clonogenicity of the neoplastic cells. These findings collectively suggest that calmodulin is a promising target to exploit in the development of new cancer chemotherapeutic agents.

LEUKEMIAS AND LYMPHOMAS — CELL SURFACE MARKER AND CULTURE STUDY

Skinnider, L. F.

The object of this project is to further delineate the cell types involved in the hemopoietic malignancies by use of surface marker studies by monoclonal antibodies and in-vitro culture of the cells in semi-solid media.

HYPERTHERMIA RESEARCH PROJECT

Liem, S. K. and Dickof, P. A.

A preliminary study has been done on the feasibility of beginning a research program in the field of hyperthermia. The Research Committee to the Saskatchewan Cancer Foundation has made funds available for travel to conferences on this topic as well as to clinical sites. A proposal for hyperthermia research has been presented to the Saskatchewan Cancer Research Committee.

A MICRO-PROCESSOR BASED WATER PHANTOM CONTROLLER

Morris, P. B. and Dickof, P. A.

This controller has been designed to provide fully automated measurements of data from therapy machines, and entry of that data into a computer for analysis. The controller can be given commands over a serial link from a host computer and can also be operated in a stand-alone mode by entering commands via a customized keypad. A two line by 40 character display gives updated position and dose information, as well as prompting for commands. Four distinct, adjustable reference points (origin, start, end and dmax) together with 'move' and 'step' commands provide extremely simple yet flexible operation. Linear plots can be continuous or discrete based on spatial or dose steps. Full editing capabilities allow any number of isodose lines to be plotted and a special function finds a local minimum or maximum along an axis. Speed of tracking is dynamically adjusted according to dose gradients, up to a settable maximum. The controller can also be interfaced to therapy machines to directly control field sizes and to a plotter.

A COMPUTER COMPATIBLE CONTOURING DEVICE

Morris, P. B.

For non-CT based treatment planning, external patient contours have to be measured directly. A mechanical contouring device has been constructed that allows the patient contour to be measured while the patient remains in a simulated position, thereby minimizing potential errors in patient positioning. The data is recorded by shaft encoders and is transferred to a host computer by a dedicated micro-computer. The host computer simultaneously displays the data in graphical form, allowing an immediate check on the validity of the entered data. Entry of special marker points is allowed, as are multiple contour slices for each patient. The relative position of each contour slice is recorded automatically by a shaft encoder attached to the simulator bed. This allows multiple contours to be taken with ease, permitting the host computer to calculate iso-height contours for compensator production.

A NUMERICALLY CONTROLLED MILLING MACHINE FOR COMPENSATOR PRODUCTION

Morris, P. B. and Daly, T. M.

By the addition of stepper motors and shaft encoders for positioning information, a small milling machine has been converted to allow for control by digital techniques. This will allow for the production of tissue compensators for radiation therapy that will correct for the effects of missing tissue. Control of the mill will be provided through a distributed system of micro-computers. To maximize flexibility yet simplify operation of the mill, each axis is controlled via a dedicated, custom-built micro-computer that is also responsible for monitoring the position of the axis. These dedicated computers send positioning and other information to a single main micro-computer, which in turn sends commands to the dedicated micros. The main micro-computer will also control a height measurement system for generating iso-height contours from patient casts and will be capable of receiving information directly from the treatment planning computer.

SONIC RANGING TO MEASURE PATIENT POSITION AND SURFACE CONTOURS

Reid, W. B., Hummel, R. H., Potter, W. G. and Dueck, H. C.

The aim of this project is to develop interactive systems for measuring patient external surface contours. These techniques are also suitable for incorporation of patient position in a verify and record system for radiation therapy. Most of the electronic and mathematical aspects of the problem have been solved and much of the required software is written. Currently, we are constructing a "working model" for evaluation in measuring patient contours in a manner which is compatible with the verify and record function.

A DYNAMIC PHANTOM FOR USE IN RADIONUCLIDE CARDIOGRAPHIC STUDIES

Sloboda, R. S., Morris, P. B. and Malik, M. H.

A compressed-air-driven pump was designed and built for use in radionuclide simulation studies of left ventricular function. The pump's moving component is a neoprene diaphragm which is expanded with air to generate a filling stroke and then returns unaided to its unstretched state. Solenoid valves control the flow of air. These are switched by a micro-processor based controller which permits timing parameters to be varied via a keypad and which generates a simulated physiological gating signal for computer acquisitions. A balloon immersed in a water-filled tank represents the left ventricle. Balloon volume is determined by monitoring changes in tank volume by means of a calibrated column affixed to the top of the tank. The phantom provides a standard against which determinations of both normal and pathological function by nuclear cardiographic means can be compared.

REALIZING THE SPECT CAPABILITY OF A ROTATING GAMMA CAMERA: AN ALTERATIVE APPROACH

Morris, P. B., Sloboda, R. S. and Malik, M. H.

A method has been developed for performing single photon emission computed tomography (SPECT) with a rotating gamma camera and a commercial computer-based data acquisition system. Unlike other methods in current use, the present approach does not require any additional hardware in that camera rotaton and data acquisition are arranged to proceed independently in synchrony. Data are acquired using software which already exists as an integral part of the general purpose acquisition system. Special purpose software which was developed to perform the image reconstruction is described. Its performance has been optimized with respect to both space and time, permitting the reconstruction for one SPECT study to take place concurrently with the acquisition of data for another. The results of phantom and clinical studies verify the technique and provide an overall impression of the system's capabilities.

VRX: A VERIFY/RECORD SYSTEM FOR RADIOTHERAPY

Dickof, P. A., Morris, P. B. and Getz, D. P.

A system of computer programs used to verify and record radiotherapy treatments has been created. The programs allow the entry of the treatment details as defined by the physician, the verification of the machine parameters at every treatment and the recording of the entire course of treatment. Various utility programs are available to simplify the use and maintenance of the system. The system has been implemented on the Allan Blair Memorial Clinic's PDP 11/60 minicomputer for use with a Mevatron linear accelerator and required minor hardware changes to the accelerator.

TPX: A TREATMENT PLANNING SYSTEM FOR RADIOTHERAPY

Dickof, P. A., Morris, P. B. and Getz, D. P.

A radiotherapy treatment planning system of programs is being developed. The programs will allow the entry of contour data directly from CT scans, a dedicated patient contouring device, as well as from a conventional sonic pen system. The planning process will cater for three-dimensional plans with electron, cobalt, linear accelerator and betatron beams. The system will also have the capability to transfer the relevant data directly to the existing verify/record system in either clinic. Concurrently work is underway to develop an improved algorithm for three-dimensional dose calculations for photon beam calculations. The commands used by the operator are similar to those used in the verify/record system in order to make the two systems easy to use.

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POLICIES GOVERNING ADMISSION TO THE CANCER CONTROL PROGRAM AND PAYMENT OF SERVICES

CANCER CLINIC REFERRAL

Any person who has cancer (or allied disease defined as precancerous or premalignant conditions, carcinoma-in-situ, and certain conditions which antedate cancer), or is suspected of having such, may be referred by a doctor and an appointment requested by telephone, letter or referral form (available from the Clinics). Persons referred to the Clinics, who have been resident in the Province of Saskatchewan for 3 months, are eligible for admission to the cancer program. Wherever possible, in order to substantiate the diagnosis of cancer, it is recommended routine diagnostic evaluation be done by the family physicians or through referral to appropriate specialists prior to being referred to the Cancer Clinics.

INVESTIGATIVE SERVICES

Investigative services carried out, or authorized by the clinics, may include full history and physical examination; diagnostic radiologic services; diagnostic laboratory and pathologic services; radioisotopic procedures; specialty consultations; authorized diagnostic or exploratory surgery performed by suitably qualified and approved medical practitioners in private practice. Fees for such authorized services are a responsibility of the Cancer Foundation.

If a diagnosis of cancer is not substantiated, the patient is discharged from the clinic and referred back to his attending physician. He is **no longer** the financial responsibility of the Cancer Foundation.

PRE-ADMISSION DIAGNOSTIC PROCEDURES LEADING TO A DIAGNOSIS OF CANCER

Payment may be authorized for the following diagnostic procedures carried out by a medical practitioner prior to referral and admission of the patient to the Cancer Control Program, if the findings **are positive,** and the patient is **referred** and admitted to a cancer clinic **within 14 days:**

Biopsy of skin including lip but **excluding pigmented lesions** clinically suspicious for malignant melanoma

Lymph node biopsies

Fine needle biopsy or aspirate cytology

Simple biopsy of cervix

Cone biopsy of cervix performed by a qualified surgeon

Dilation and curettage

Prostatic biopsies

Endoscopy (Esophagoscopies, Bronchoscopies, Gastroscopies)

Cystoscopy

Sigmoidoscopy

Angiography

Aortography

Encephalography

Ventriculography

Myelography

N.B. Breast Biopsy is excluded unless performed by a qualified surgeon

Any other pre-admission diagnostic services are not the responsibility of the Cancer Foundation.

PRE-ADMISSION SURGICAL PROCEDURES LEADING TO A DIAGNOSIS OF CANCER

The Saskatchewan Cancer Foundation **cannot** recognize any claim for medical care of a cancer patient unless the patient has been previously admitted to a cancer clinic and the care authorized, excepting when an **emergency operation** is necessary for a

cancerous condition, and the cancer clinic is informed within 7 days. Similarly, when an operation is performed on a provisional diagnosis of a benign condition, and a cancerous condition is found to be the principle disorder present, although not previously suspected, the Cancer Foundation will accept responsibility. Under certain or special circumstances, a patient may be admitted to the Cancer Control Program without personal attendance at a clinic. This applies in the case of certain skin cancers, completely excised; carcinoma-in-situ of the cervix, and certain other gynecological and urological cancers not requiring consultation or multimodal therapy. The cancer clinic, however, must be notified of the diagnosis, treatment and plans for management, and receive a copy of all pertinent records within the time limits mentioned. Certain surgical cases completely assessed at a major hospital may be authorized by the surgeon communicating with the Director of the cancer clinic by letter or by telephone. It is necessary in such cases that all pertinent records and reports be sent within the 14-day limit for purposes of registration, documentation and authorization of payment for the accounts by the Saskatchewan Cancer Foundation.

POSTMORTEM DISCOVERY OF CANCER

Accounts in connection with the management of a patient who is found at postmortem to have cancer, are **not** the responsibility of the Cancer Foundation and should be processed through the other payment agencies with the statement that the diagnosis was **not** known prior to postmortem examination.

TREATMENT SERVICES

Surgical

When investigation discloses cancer, and surgical treatment is indicated, the patient or his referring physician may choose a surgeon; the final choice of surgeon always rests with the patient. In the exceptional case, when neither the referring physician nor the patient has a preference, then a roster is used to assist the patient in selecting his surgeon.

The Saskatchewan Cancer Foundation will pay surgeons at specialty rates for procedures authorized by the Foundation, provided the surgeon is Certified or is a Fellow of the Royal College of Physicians and Surgeons of Canada, and is on the list of the College of Physicians and Surgeons of Saskatchewan for payment at specialty rates. Furthermore, the surgeon must have previously applied to the Executive Director of the Saskatchewan Cancer Foundation to have his/her name included on the Surgical Roster of the Foundation, and must provide evidence that his/her practice is located in a community with adequate hospital facilities including radiology, pathology, surgical and anesthetic services, and suitably trained personnel to operate such facilities.

In cases of unusual difficulty, or requiring possible multimodal therapy, it is recommended that preoperative consultation and authorization be obtained from the Foundation.

Surgeons wishing to make application for an appointment to the Saskatchewan Cancer Foundation for inclusion on the surgical roster, should write to the Executive Director, Saskatchewan Cancer Foundation, Suite 400 Parliament Place, 2631 28th Avenue, Regina, Saskatchewan S4S 6X3.

Breast Cancer

It is the policy of the Saskatchewan Cancer Foundation that biopsy and elective surgery for patients with suspected breast cancer be carried out by qualified surgeons in hospitals with a qualified pathologist and facilities for the performance of major surgery.

Unless these conditions are met, financial responsibility for breast surgery will not be assumed by the Cancer Foundation.

Medical

The Saskatchewan Cancer Foundation will pay internists and pediatricians for definitive chemotherapeutic management of leukemias and lymphomas, provided:

- they are certified in medicine or pediatrics by the Royal College of Physicians and Surgeons of Canada, or hold the F.R.C.P. (Canada); and have had past experience or special training in the use of cancer chemotherapeutic agents;
- the patient has been admitted to the Cancer Control Program;

- there is cooperation with the medical staff of the cancer clinic to ensure:
  - i) initial and continuing provision of the chemotherapeutic drugs;
  - ii) appropriate safeguards for the patient against untoward toxicity;
  - iii) the keeping of detailed clinical and laboratory records of the progress of the patient, at the cancer clinic.

Specialists' consultations are paid when authorized by a Clinic Director.

Medical care of complications directly related to surgery for cancer is payable by the Saskatchewan Cancer Foundation.

Supportive medical care required by **special** medical circumstances and provided by a qualified internist is also payable by the Cancer Foundation.

Radiotherapeutic

All radiotherapeutic treatment is performed by the staff of the cancer clinic involved.

Chemotherapeutic

A wide range of chemotherapeutic drugs, proven to be useful in the control of cancer are in use by the medical staff of the cancer clinic involved. These drugs are provided without charge to the patient.

Certain drugs may be provided to the practicing physician for administration to his patient, under the general supervision of the cancer clinic staff provided:

- the patient has been previously admitted to the Cancer Control Program;
- the drug may have usefulness in the management of the patient's cancer;
- the toxicity of the drugs is low, or the tolerance of the patient for the drug has been determined previously by the medical staff of a cancer clinic; or the patient is in the advanced stage of his illness;
- regular clinical and laboratory reports in the required detail are submitted to a cancer clinic.

Accounts concerning the administration of these drugs, or day to day supervision of such patients, may be paid by the Saskatchewan Cancer Foundation.

FOLLOW-UP (REVIEW) SERVICES

When treatment for cancer is completed, and the patient is ready to return home, arrangements are made for follow-up examinations. The family doctor or specialist may be requested by a Clinic Director to conduct review examinations. Requests for review examinations by either a specialist or the cancer clinic may be initiated by the family physician by letter to the Clinic Director. A specialist may make requests of the cancer clinic for review examinations as well by the same procedure.

Cancer patients are encouraged to consult their local physician for purposes of familiarization of the doctor with the progress of the patient, and for purposes of supportive treatment or advice related to their malignant conditions. Fees for such services are payable by the Cancer Foundation. A report of the examination must be submitted to the cancer clinic concerned. A correspondence fee, if appropriate, will be paid by the Cancer Foundation.

SUPPORTIVE CARE

Should the patient's condition be advanced at the time of the first examination by the family physician, his continuing care may be authorized **without prior personal attendance** at a clinic, provided the attending physician notifies the Clinic Director. Payment is on a fee-for-service basis.

DRUG SERVICES

Authorized cancer patients in hospital receive all drugs without direct charge. Drugs are **not** supplied as a benefit to out-patients, excepting for certain hormones and chemotherapeutic agents which are provided by the cancer clinics for active treatment of cancer, and certain replacement drugs made necessary by treatments directed towards the control of cancer.

SERVICES EXCLUDED FROM CANCER FOUNDATION RESPONSIBILITY

The travelling expenses of patients to and from clinics are **not** paid by the Saskatchewan Cancer Foundation.

Private or semi-private ward accommodation, and the services of private duty nurses are **not** paid by the Saskatchewan Cancer Foundation.

Medical care for pre-existing non-malignant disease is **not** the responsibility of the Saskatchewan Cancer Foundation.

Fees for authorized diagnostic or exploratory surgery, even though a benign condition be found, may be billed to the Saskatchewan Cancer Foundation. However, fees for concurrent, definitive treatment of benign conditions are **not** the responsibility of the Saskatchewan Cancer Foundation.

Medical and surgical services rendered to a person prior to admission to the Cancer Control Program are not payable by the Saskatchewan Cancer Foundation.

SERVICES AVAILABLE TO NON-CANCER CASES

Persons with non-malignant conditions may be referred to a cancer clinic for treatment by radiotherapy. Fees for medical and surgical services rendered to such persons are not payable by the Saskatchewan Cancer Foundation.

CORRESPONDENCE SERVICES

In the case of all patients, malignant or non-malignant, which may be seen initially or periodically at the clinics, a full report is mailed to the referring physician as soon as possible. If the patient is hospitalized, progress reports will be sent, either during hospitalization, or at the time of the patient's discharge to his home.

BILLING PROCEDURES

Physician accounts should be sent direct to the Medical Care Insurance Commission, 3475 Albert Street, Regina S4S 6X6, using the MCIC claim cards, as they process these accounts for payment on behalf of the Saskatchewan Cancer Foundation. All other accounts should be sent to the cancer clinic where the patient is registered.

SERVICES OUTSIDE THE PROVINCE

All requests for consultation or treatments which are not available in Saskatchewan, are made by contacting the Clinic Director of the cancer clinic concerned. Financial approval of such special out-of-province referrals may then be authorized by the Executive Director.

Requests on behalf of cancer patients are **not** to be sent to the Medical Care Insurance Commission.

Payment by the Foundation for out-of-province services is made under the following circumstances:

(1) When a patient has been referred out-of-province for consultation or treatment not available in Saskatchewan, as outlined above, the cost of such treatment is paid by the Saskatchewan Cancer Foundation. The cost of hospital care is paid by the Saskatchewan Hospital Services Plan. Other costs such as travel, sustenance and accommodation are the patient's responsibility.

(2) The regulations regarding unsuspected and emergency treatment of cancer, apply outside the Province as well.

(3) If neither 1 or 2 apply, and a person receives definitive treatment outside the Province, the Saskatchewan Cancer Foundation will only assume financial responsibility, where:

   (a) the attending physician was a specialist with qualifications recognized by the Saskatchewan Cancer Foundation;

(b) the appropriate cancer clinic receives complete clinical data from the attending physician including history, physical examination, operative and pathology reports and a discharge summary. The disposition of patient and arrangements for follow-up examinations should be included and subsequent reports sent to the cancer clinic;

(c) the person attends the cancer clinic for follow-up care immediately upon his return to Saskatchewan.

(4) Subsequent follow-up examinations may be conducted out-of-province provided a report is submitted by the attending physician(s).

(5) Advanced care may be conducted out-of-province, if the patient remains a resident of Saskatchewan or, for three months only, if the patient gives up Saskatchewan residence.

(6) When a Saskatchewan resident moves out of the province and establishes residence elsewhere, and develops cancer, the Saskatchewan Cancer Foundation will pay for medical and surgical management as outlined above, for a period of three months only from the date of departure.

In each case either the patient or his physician will be reimbursed at the same rates, and subject to the same conditions as if the services were provided in Saskatchewan.

CANCER DATA SERVICES

Since 1946 every effort has been made to collect complete statistical data concerning cancer in Saskatchewan. For each patient referred a record containing personal and clinic information is completed.

Also through the assistance of the practicing pathologists, copies of pathology reports of cancer are forwarded regularly to the appropriate cancer clinic.

The submission of such a pathology report of cancer by a pathologist is a statistical matter and does not constitute the referral of the patient to a cancer clinic.

CYTOLOGY SERVICES

The Provincial Cytology Laboratory is located in the Pasqua Hospital in Regina and provides all necessary equipment for the performance of cervical cytology technique upon request, without charge. A rapid reporting service acquaints the physician with the result by mail or telephone. A manual of instruction entitled "Prevention of Cancer, The Female Genital Tract — Saskatchewan", is available from the Provincial Cytology Laboratory, or from the Canadian Cancer Society (Saskatchewan Division), 101 - 2629 29th Avenue, Regina, Saskatchewan S4S 2N9.

HISTORICAL BACKGROUND

1929 The Saskatchewan Medical Association appointed a committee to study facilities available in the Province for treatment of cancer and recommended to the Minister of Health that a cancer program be established.

1930 The Saskatchewan Cancer Commission Act was passed which authorized a Commission to establish a cancer control program in Saskatchewan.

1931 Consultative diagnostic treatment clinics were opened at the Regina General Hospital and the Saskatoon City Hospital.

A radon plant was established at the University of Saskatchewan and was operated by the Cancer Commission until 1962.

1939 The Regina Cancer Clinic was relocated to the Regina Grey Nuns' Hospital.

1944 The Cancer Control Act replaced the Saskatchewan Cancer Commission Act, and provided treatment at provincial expense for persons who had been resident in the province for more than six months.

1945 Radioactive isotopes were introduced to a limited extent at the clinics.

1947 The Canadian Cancer Society provided a personal service worker at each clinic to help in the personal needs of the patient.

1948 The Regina clinic moved to a newly constructed wing of the Regina Grey Nuns' Hospital and was named the Allan Blair Memorial Clinic in recognition of the contribution of the late Dr. Allan W. Blair to the program.

1949 A 25 million electron volt betatron was installed at the University of Saskatchewan and became available for treatment of patients with advanced cancer.

1951 The first cobalt unit in the world was designed and installed at the Saskatoon Cancer Clinic.

1954 The cancer clinic in Saskatoon was moved to the newly constructed University Hospital.

1958 Treatment was extended as an insured benefit to persons who had been resident in the province for more than three months.

1962 Insured benefits for cancer treatment were extended to Saskatchewan residents who received treatment outside the province.

1963 Renovation and expansion of radiotherapy facilities at the Allan Blair Memorial Clinic were completed.

1966 Insured benefits were extended to landed immigrants from the day of arrival.

1970 The Minister of Public Health established a study team to review and examine all aspects of cancer care in Saskatchewan and the report was made available in 1972.

1972 A new radiotherapy facility was opened at the Saskatoon Cancer Clinic which included a new 42 million electron volt betatron.

The Cancer Control Act was amended to provide for the establishment of trust funds which could receive gifts, donations, bequests or grants.

1973 The Cancer Control Act was amended to restructure the Commission and redefine its powers and duties.

A new Commission was appointed in April 1973.

1975 Nuclear medicine services were transferred from the cancer program to the Boards of the University Hospital and the South Saskatchewan Hospital Centre as hospital-based services.

1978 Dr. T. A. Watson completed a study titled "A Report on Some Aspects of the Saskatchewan Cancer Program". Several recommendations were made in the report including the establishment of the Saskatchewan Cancer Foundation to replace the Cancer Commission and the purchase of a linear accelerator for the Allan Blair Memorial Clinic.

Construction was completed on the expanded and renovated radiotherapy facilities at the Allan Blair Memorial Clinic.

1979 The Saskatchewan Cancer Foundation Act was passed establishing a Foundation to replace the Cancer Commission. Under this Act, the Foundation conducts a program for the diagnosis, prevention and treatment of cancer.

1980 Renovation to the Allan Blair Memorial Clinic began with the construction of the chemotherapy treatment area.

1981 A Mevatron 77 Linear Accelerator was installed at the Allan Blair Memorial Clinic.

Construction of a 28 bed patient lodge in Saskatoon was begun.

POOR

QUALITY

ORIGINAL